No. 8900189

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Rogers NK Seed Co.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED NOVEL VARIETY OF SEXUALLY REPRODUCED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF eighteen YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, IMPORTING IT, OR EXPORTING IT, OR USING IT IN PRODUCING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

BEAN

'Marquis'

In Testimony Whereof, *I have hereunto set my hand and caused the seal of the* Plant Variety Protection Office *to be affixed at the City of* Washington, D.C. *this* 30th *day of* December *in the year of our Lord one thousand nine hundred and* ninety-three.

Attest:

Kenneth B. Evans

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Secretary of Agriculture

APPROVAL EXPIRES 4-30-85

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE

(Instructions on reverse)

FORM APPROVED: OMB NO. 0581-0055

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S)
Rogers ~~Brothers~~ Seed Company
NK AAA 2 July 1992

2. TEMPORARY DESIGNATION
D82166

3. VARIETY NAME
Marquis JMS 3/28/90

4. ADDRESS *(Street and No. or R.F.D. No., City, State, and Zip Code)*
P.O. Box 4727
Boise, Idaho 83711

5. PHONE *(Include area code)*
(208) 322-7272

FOR OFFICIAL USE ONLY

PVPO NUMBER
8900189

6. GENUS AND SPECIES NAME
Phaseolus vulgaris

7. FAMILY NAME *(Botanical)*
Leguminoseae

FILING
DATE: Apr. 19, 1989
TIME: ☐ A.M. ☐ P.M.

8. KIND NAME
Dry Edible Bean

9. DATE OF DETERMINATION
September 1988

FEES RECEIVED
AMOUNT FOR FILING: $ 1800.00
DATE: Apr. 18, 1989
AMOUNT FOR CERTIFICATE: $ 300.00
DATE: Dec. 13, 1993

10. IF THE APPLICANT NAMED IS NOT A "PERSON," GIVE FORM OF ORGANIZATION *(Corporation, partnership, association, etc.)*
Corporation

11. IF INCORPORATED, GIVE STATE OF INCORPORATION
Delaware

12. DATE OF INCORPORATION
Feb. 25, 1975

13. NAME AND ADDRESS OF APPLICANT REPRESENTATIVE(S), IF ANY, TO SERVE IN THIS APPLICATION AND RECEIVE ALL PAPERS
Dr. ~~Ronald Shellenberger~~ DAVID WILLMOT AAA 2 July 1992
Rogers ~~Brothers~~ NK Seed Company
~~P.O. Box 4727~~ 6338 Highway 20-26
~~Boise, Idaho 83711~~ Nampa, ID 83687 KWD 2/10/93
PHONE *(Include area code)*: (208) 322-7272

14 CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED

a. ☒ Exhibit A, Origin and Breeding History of the Variety *(See Section 52 of the Plant Variety Protection Act.)*
b. ☒ Exhibit B, Novelty Statement.
c. ☒ Exhibit C, Objective Description of Variety *(Request form from Plant Variety Protection Office.)*
d. ☒ Exhibit D, Additional Description of Variety.
e. ☒ Exhibit E, Statement of the Basis of Applicant's Ownership.

15. DOES THE APPLICANT(S) SPECIFY THAT SEED OF THIS VARIETY BE SOLD BY VARIETY NAME ONLY AS A CLASS OF CERTIFIED SEED? *(See Section 83(a) of the Plant Variety Protection Act.)*
☐ Yes *(If "Yes," answer items 16 and 17 below)* ☒ No

16. DOES THE APPLICANT(S) SPECIFY THAT THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS?
☐ Yes ☒ No

17. IF "YES" TO ITEM 16, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED?
☐ Foundation ☐ Registered ☐ Certified

18. DID THE APPLICANT(S) PREVIOUSLY FILE FOR PROTECTION OF THE VARIETY IN THE U.S.?
☐ Yes *(If "Yes," give date)*
☒ No

19. HAS THE VARIETY BEEN RELEASED, OFFERED FOR SALE, OR MARKETED IN THE U.S. OR OTHER COUNTRIES?
Sale of product for field trials only.
☐ Yes *(If "Yes," give names of countries and dates)*
☒ No

20. The applicant(s) declare(s) that a viable sample of basic seeds of this variety will be furnished with the application and will be replenished upon request in accordance with such regulations as may be applicable.

The undersigned applicant(s) is (are) the owner(s) of this sexually reproduced novel plant variety, and believe(s) that the variety is distinct, uniform, and stable as required in Section 41, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act.

Applicant(s) is (are) informed that false representation herein can jeopardize protection and result in penalties.

SIGNATURE OF APPLICANT: Ronald Shellenberger Pulse Marketing Dir. — DATE: 3/30/89

SIGNATURE OF APPLICANT: Allen E. Hill, VICE-PRES. — DATE: 3-31-89

FORM WA-470 (7-84) (Edition of 3-84 is obsolete.)

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DRY EDIBLE BEAN

Marquis
~~D82166~~

EXHIBIT A

ORIGIN AND BREEDING HISTORY

JMS 3/28/90

The Great Northern bean Marquis ~~D82166~~ was derived from the following cross pollination in the greenhouse during the winter of 1976-1977:

NEBRASKA # 1 x 732024-6-2-1

Details of selection and multiplication:

	Year	Generation	Field Number	Bulk Harvest	No. of Single Plant Selections
Winter	1976-77	F_1	GH-005	85 g	
Summer	1977	F_2	D77-2024		5
Summer	1978	F_3	D78-1266		2
Summer	1979	F_4	D79-695		4
Summer	1980	F_5	D80-710	851 g	3
Summer	1981	F_6	D81-763	709 g	1
Summer	1982	F_7	D82-0166	1,135 g	
Summer	1983	F_8	D83-0448	7,000 g	
Summer	1984	F_9	D84-3043	114 lbs.	
Summer	1985	F_{10}	D85-2416	1,163 lbs.	

Marquis
~~D82166~~ has been observed to be stable and uniform since the F_6 generation.

Stock D85-2416 has been increased to commercial size quantities. Seed stock will be monitored for purity.

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POD LENGTH

JMS 3/28/90

Marquis ~~D82166~~		Beryl	
1987	**1988**	**1987**	**1988**
140 mm.	131 mm.	120 mm.	138 mm.
140 mm.	156 mm.	125 mm.	141 mm.
125 mm.	143 mm.	130 mm.	126 mm.
130 mm.	141 mm.	130 mm.	138 mm.
125 mm.	130 mm.	120 mm.	134 mm.
125 mm.	132 mm.	125 mm.	126 mm.
120 mm.	144 mm.	120 mm.	134 mm.
125 mm.	120 mm.	130 mm.	135 mm.
110 mm.	133 mm.	125 mm.	127 mm.
130 mm.	135 mm.	120 mm.	141 mm.
120 mm.	135 mm.	125 mm.	118 mm.
135 mm.	136 mm.	115 mm.	136 mm.
130 mm.	135 mm.	115 mm.	138 mm.
125 mm.	138 mm.	135 mm.	130 mm.
125 mm.	131 mm.	135 mm.	128 mm.
135 mm.	130 mm.	120 mm.	128 mm.
130 mm.	135 mm.	115 mm.	126 mm.
130 mm.	144 mm.	115 mm.	121 mm.
130 mm.	143 mm.	120 mm.	124 mm.
120 mm.	149 mm.	115 mm.	130 mm.

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Data file PVP82166
Title: PVP ~~D82166~~ Marquis VS. BERYL JMS 3/28/90

Function: ANOVA-1
Data case no. 1 to 80
Without selection

One way ANOVA grouped over variable 1
VARIETY
with values from 1 to 2

Variable 4
POD LENGTH

A N A L Y S I S O F V A R I A N C E T A B L E

	Degrees of Freedom	Sum of Squares	Error Mean Square	F-value	Prob.
Between	1	588.6125	588.61	8.46	.004
Within	78	5427.0750	69.58		
Total	79	6015.6875			

Coefficient of Variation= 6.44%

Var. 1	V A R I A B L E Number	No. 4 Sum	Average	SD	SE
1	40.00	5291.000	132.27	8.91	1.32
2	40.00	5074.000	126.85	7.73	1.32
Total	80.00	10365.000	129.56	8.73	0.98
Within				8.34	

Bartlett's Test

Chi-square = .7725558
Number of Degrees of Freedom = 1
Approximate Significance = .3794

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DRY EDIBLE BEAN

Marquis
~~D82166~~

EXHIBIT B

NOVELTY STATEMENT

JMS 3/28/90

Our variety Marquis ~~D82166~~ is most nearly like the variety Beryl, however, it differs in the following areas:

1. Marquis ~~D82166~~ has a longer pod than Beryl.
2. Marquis ~~D82166~~ matures two days later than Beryl, 93 days compared to 91 days for the years 1982-1988 in Twin Falls, Idaho.
3. Marquis ~~D82166~~ has ~~larger~~ ~~Smaller~~ seed than Beryl. 12/28/92

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JMS 3/28/90

	Marquis ~~D82166~~		BERYL	
	Maturity	**S/C**	**Maturity**	**S/C**
1988	87 days	1504	87 days	1472
1987	99 days	1457	98 days	1531
1986	87 days	1516	84 days	1620
1985	90 days	1596	88 days	1560
1984	98 days	1420	96 days	1528
1983	95 days	1380	93 days	1444
1982	92 days	1624	89 days	1732
$\bar{x}$ =	92.57 days	1499.57	90.71 days	1555.28

U. S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
LIVESTOCK AND SEED DIVISION

Exhibit C

OBJECTIVE DESCRIPTION OF VARIETY
Dry Edible Bean (Phaseolus vulgaris L.)

JMS 3/28/90

NAME OF APPLICANT(S)	EXPERIMENTAL NAME	VARIETY NAME
Rogers Brothers Seed Company	D82166	~~D82166~~ Marquis

ADDRESS (Street and No. or R.F.D. No., City, State, ZIP)
P.O. Box 4727
Boise, Idaho 83711

FOR OFFICIAL USE ONLY
PVPO NO. 8900189

Provide data for all characters unless indicated as "optional." Place numbers in the boxes for the characters or numerical values which best describe this variety. Measured data should be the mean of an appropriate number of well spaced (15-20 cm) plants. The Royal Horticulture Society or any recognized color standard may be used to determine plant color. Designate the color system used below.

COLOR SYSTEM USED

LOCATION OF THE TEST(S) TO EVALUATE THIS VARIETY
Twin Falls, Idaho

1. MARKET CLASS

[5]

CLASS	CHECK
1 = Navy (Pea)	Seafarer
2 = Small White	Aurora
3 = Black	Midnight
4 = Pinto	UI-114
5 = Great Northern	UI-59
6 = Small Red	NW-59
7 = Pink	Viva
8 = Cranberry	UI-50
9 = Dark Red Kidney	Montcalm
10 = Light Red Kidney	Redkloud
11 = Yellow Eye	Steuben
12 = Other (specify)	

2. MATURITY

[2] 1 = Early (80-90 days); 2 = Medium (90-100 days); 3 = Late (>100 days)

[93] Days from planting to harvest maturity 7 year average
Physiological maturity (90% pods dry & buckskin)

[1536] Heat units from planting to harvest maturity (optional). Specify base temperature used: 50°F

[91] Days from planting to harvest maturity of check variety (use check appropriate to market class shown in item 1)

3. PLANT HABIT

[4]

TYPE
1 = Ia Bush-determinate, strong and erect stem and branches
2 = Ib Bush-determinate, weak stem and branches
3 = IIa Erect growth habit-indeterminate, guides (runners) short or not developed
4 = IIb Erect growth habit-indeterminate, guides medium to long, with no ability to climb
5 = IIIa Vine-indeterminate, short guides with no ability to climb
6 = IIIb Vine-indeterminate, long guides with ability to climb
7 = IVa Indeterminate climbing, pods distributed throughout the plant
8 = IVb Indeterminate climbing, pods concentrated on the upper part of the plant

[85] Average height of mature plant, in cm. 2 year average
Total plant height including vine.

[81] Average height of check variety, in cm. (use same check as above)

[3] Pod Position: 1 = Low (lower pods touching soil surface)
2 = High (lower pods not touching soil surface)
3 = Scattered (not concentrated high or low)

[1] Adaptability to machine harvest: 1 = Adapted 2 = Not Adapted

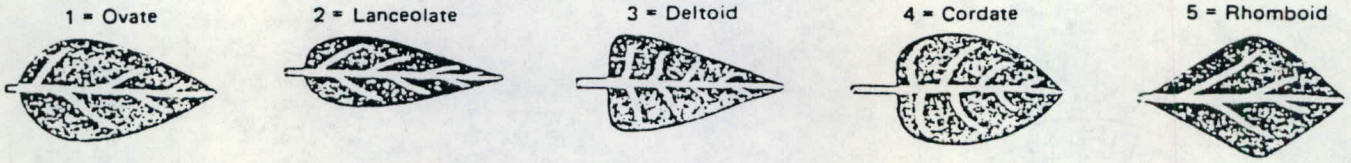
[2] Lodging resistance: 1 = Good 2 = Fair 3 = Poor

4. LEAFLET MORPHOLOGY (Use terminal leaflet of a fully expanded trifoliolate)

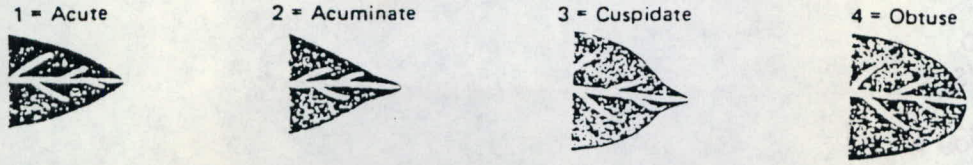
[2] 1 = Smooth; 2 = Wrinkled

[1] 1 = Dull; 2 = Glossy; 3 = Semiglossy; 4 = Variable

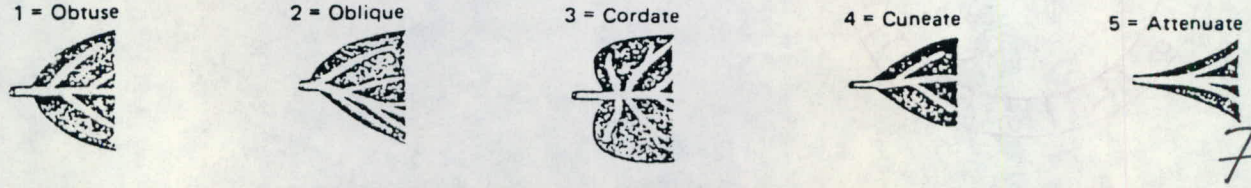
[1] SHAPE:



[2] APEX OF LEAFLET:



[1] BASE OF LEAFLET:



7.

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5. FLOWER COLOR AND DAYS TO BLOOM

[1] COLOR OF STANDARD: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

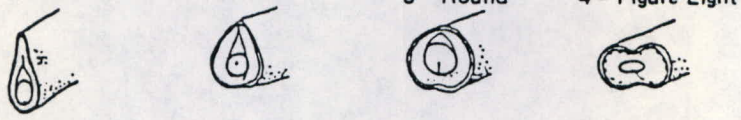
[1] COLOR OF KEEL: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

[1] COLOR OF WINGS: 1 = White; 2 = Cream; 3 = Pink; 4 = Blue; 5 = Purple

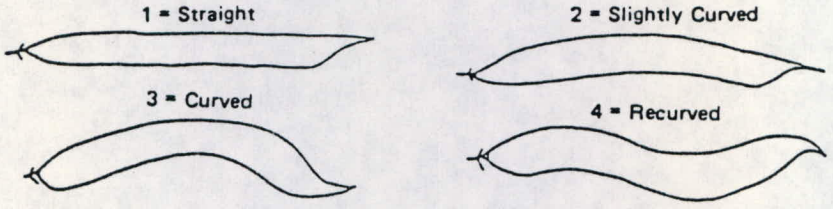
[4][8] Days to 1st 50% bloom 7 year average

6. POD MORPHOLOGY (Green pod morphology optional)

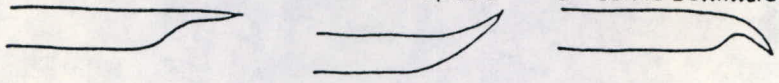
Green	Mature		
[1]	[1]	COLOR PATTERN:	1 = Solid; 2 = Striped; 3 = Blotched; 4 = Mottled; 5 = Other _____
[3]	[4]	PRIMARY COLOR:	At physiological maturity 1 = Purple; 2 = Red; 3 = Green; 4 = Yellow; 5 = Tan; 6 = Brown; 7 = Other _____
[1]	[1]	COLOR MODIFIER:	1 = Light; 2 = Light Medium; 3 = Medium; 4 = Medium Dark; 5 = Dark
[ ]	[ ]	SECONDARY COLOR:	1 = Purple; 2 = Red; 3 = Green; 4 = Yellow; 5 = Tan; 6 = Brown; 7 = Other _____
[1]	[1]	CROSS SECTION SHAPE:	1 = Flat; 2 = Pear; 3 = Round; 4 = Figure Eight



[2] [2] POD CURVATURE: 1 = Straight; 2 = Slightly Curved; 3 = Curved; 4 = Recurved



[3] [3] POD BEAK ORIENTATION: 1 = Straight; 2 = Curved Upward; 3 = Curved Downward; 4 = Variable



Average beak length, in cm. _____

[3] [3] CONSTRICTIONS: 1 = None; 2 = Slight; 3 = Deep

[5].[8] Average number of seeds per pod

7. SEED COLOR

[1] 1 = Shiny; 2 = Dull; 3 = Semishiny; 4 = Variable

[1] 1 = Monochrome; 2 = Polychrome

[ ][1] PRIMARY COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other _____

[ ][ ] SECONDARY COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other _____

[1] COLOR PATTERN: 1 = Solid; 2 = Splashed; 3 = Mottled; 4 = Striped; 5 = Flecked; 6 = Dotted

[1] HILAR RING: 1 = Absent; 2 = Present

[ ][ ] HILAR RING COLOR: 1 = White; 2 = Yellow; 3 = Buff; 4 = Tan; 5 = Brown; 6 = Pink; 7 = Red; 8 = Purple; 9 = Blue; 10 = Black; 11 = Other _____

8. SEED SHAPE AND WEIGHT

[5] SHAPE OF SEED TAKEN FROM MIDDLE OF POD: 1 = Round; 2 = Oval; 3 = Cuboid; 4 = Kidney; 5 = Truncate Fastigiate

[3][0] Dry seed weight in g/100g seeds (adjusted to 12% moisture) 30.27 1500 seeds/lb.

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9. ANTHOCYANIN PIGMENTATION

1 = ABSENT
2 = PRESENT

[1] Flowers [1] Stems [1] Pods [1] Seeds

[1] Leaves [1] Petioles [1] Peduncles [1] Nodes

10. KNOWN DISEASE REACTION

DISEASES - COMMON NAME: Anthracnose, Rust, Powdery mildew, Fusarium root rot, Pythium root rot, Rhizoctonia root rot, Pythium wilt, Sclerotinia white mold, Angular leaf spot, Bacterial wilt, Halo blight, Fuscous blight, Common bacterial blight, Red node virus, Pod mottle virus, Bean common mosaic virus, Bean yellow mosaic virus, Curly top virus, Bacterial brown spot, Bean southern mosaic virus, Other (specify) _____

REACTION: 1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance

(Give the common name (CN), scientific name (SN), and race(s), where applicable)

[2] DISEASE: CN Bean Common Mosaic Virus ; SN Marmor phaseoli ; Race(s) NY 15 & BV 1

[3] DISEASE: CN Common Blight ; SN Xanthomonas campestris pv. phaseoli ; Race(s) _____

[3] DISEASE: CN Rust ; SN Uromyces phaseoli ; Race(s) Slow rusting for undetermined races.

[1] DISEASE: CN Sclerotinia White Mold ; SN Sclerotinia sclerotiorum ; Race(s) _____

Moderately tolerant

[3] DISEASE: CN Fusarium Root Rot ; SN Fusarium solani F.sp. phaseoli ; Race(s) _____

[ ] DISEASE: CN _____ ; SN _____ ; Race(s) _____

11. KNOWN INSECT/NAMATODE RESISTANCE

PESTS - COMMON NAME: Aphids, Bean pod weevil, Bruchid beetle, Corn earworm, Flea beetle, Leaf hopper, Lesion nematode, Lygus, Mexican bean beetle, Root knot nematode, Corn seed maggot, Spider mites, Thrips, Weevils, Western bean cutworm, Other (specify)

_____

REACTION: 1 = Susceptible; 2 = Resistant; 3 = Tolerant; 4 = Avoidance

(Give the common name (CN), scientific name (SN), and biotype, where applicable)

[ ] PEST: CN _____ ; SN _____ ; Biotype _____

[ ] PEST: CN _____ ; SN _____ ; Biotype _____

[ ] PEST: CN _____ ; SN _____ ; Biotype _____

12. KNOWN PHYSIOLOGICAL STRESS REACTION

1 = Susceptible; 2 = Resistant;
3 = Tolerant; 4 = Avoidance

[ ] Heat [ ] Cold [ ] Drought [ ] Air Pollution

Nutrient toxicity or deficiency (specify nutrient) _____

Other _____

13. COMMENTS

U.S.D.A. - RENNIE STAVELY

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1987 UNIFORM DRY BEAN RUST NURSERY RESULTS

Cultivar or Line (and type)	Source a/	Location, Replicate, and Rust Reaction b/								Blight N. Platte
		Beltsville, MD		Saginaw, MI		Fargo, ND		N. Platte, NE		
		I	II	I	II	I	II	I	II	
1. Pinto III (P)	CK	VS	VS	VS	VS	VS	VS	S	S	
2. M.W.H.R.(Sn)	CK	VS	VS	S	MR	VS	VS	R	R	
3. Aurora (SW)	CK	S(SR)	VS(SR),HR	S(SR)	MS(SR)	HR	R(SR)	I	I	
4. Olathe(P)	CK	HR,S(SR)	HR,S(SR)	S(SR)	MS(SR)	VS	VS	I	R	
5. D81090(GN)	RB	S	S	R(SR)	MS	VS	VS	I	R	
6. D81124B(P)	RB	R,VS(SR)	R,VS(SR)	VS(SR)	VS(SR)	VS	VS	MR	S	
Agassiz 7. D81127B(P)	RB	R,VS(SR)	R,VS(SR)	S(SR)	VS(SR)	S	S	I	S	
8. D82024(SW)	RB	S	S	HR	HR	R	R	I	I	
9. D82025(SW)	RB	S	S	HR	HR	MS(SR)	MS(SR)	I	I	Common
Marquis 10. D82166(GN)	RB	S	S	MR(SR)	MS(SR)	VS(SR)	VS(SR)	R	MS	
11. D83025(SW)	RB	S	S	VS	VS	MS	S	VS	VS	
12. D83044(SW)	RB	VS	S	HR	I	HR	HR	I	I	
13. D83074(SW)	RB	S	S	S	VS	HR	HR	VS	VS	
14. D83116(SW)	RB	S	S	HR	I	HR	HR	I	I	
15. D84123(SW)	RB	S	S	HR	R(SR)	HR	HR	I	I	
16. D84347(P)	RB	R(SR)	R,VS(SR)	HR	HR	HR	HR	I	I	
17. D84354(P)	RB	VS	VS	VS	VS	VS	VS	VS	VS	
18. D85176(GN)	RB	VS	VS	VS	VS	VS	VS	VS	VS	
19. D85212(P)	RB	R,S(SR)	R,S(SR);S c/	MS(SR)	MR(SR)	S MR	VS MR	MR	S	
20. D85234(P)	RB	S	S	VS	S	S	S	MS	S	Common
21. D85235(P)	RB	R,MS(SR)	R,MS(SR)	VS(SR)	VS	S	S	MS	I	
22. D86138(SW)	RB	VS	S	VS	VS	VS	VS	R	R	Common
23. D86169(SW)	RB	S(SR)	S	R(SR)	HR	R	MS	I	I	
24. CO22625(P)	CSU	R,S(SR)	R,VS(SR)	S(SR)	S(SR)	VS	S	I	I	Common
25. CO33142(P)	CSU	R	R	S(SR)	R(SR)	S	-	I	S	Common + Halo
26. Bill Z(P)	CSU	R,S(SR)	R,S(SR)	I	HR	VS	-	I	MS	
27. Eagle(Sn)	CK	S	S	R(SR)	R(SR)	HR	-	MS	MS	
28. 95B(B1)	CK	R	R	-	-	-	-	I	I	
29. B190(B1)	CK	R	R	-	-	-	-	I	I	

a/ Sources: CK = Check; CSU = Colorado State University; RB = Rogers Brothers Seed Co.

b/ Rust Reactions: I = Immune; HR = Hypersensitive resistance; R = resistance with pustules predominantly <0.3 mm; MR = moderately resistant with pustules predominantly 0.3-0.5 mm and none larger; MS = moderately susceptible with pustules up to 0.8 mm; S = susceptible with pustules larger than 0.8 mm present; VS = very suceptible with pustules larger than 0.8 mm predominant. SR = slow rusting = low pustule intensity.

c/ Segregating with most plants giving first reaction and some the second.

Code: STAVELY, Page 10, 10/21/87

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DRY EDIBLE BEAN

Marquis
~~D82166~~

EXHIBIT D

BOTANICAL DESCRIPTION

JMS 3/28/90

Marquis
~~D82166~~ is a high yielding, fairly upright, wide profile bean with open foliage. It has a Type IIB plant habit with light colored foliage.

Marquis
~~D82166~~ matures in 93 days, which is two days later than Beryl, in Twin Falls, Idaho, in the years 1982-1988 (maturity defined as 90% of pods turned from green to buckskin).

Marquis
~~D82166~~ has an average seed count of 1500 seeds per pound, which is slightly larger than Beryl at 1555 seeds per pound.

Marquis
~~D82166~~ is resistant to the NY 15 and BV 1 strains of Bean Common Mosaic Virus. It also has tolerance to Common Blight. Testing done by the U.S.D.A. has shown that Marquis ~~D82166~~ is resistant or tolerant to undetermined races of Uromyces phaseoli and demonstrates slow rusting.

Marquis
~~D82166~~ has shown adaptability in the production areas of Idaho and Nebraska. In canning tests, Marquis ~~D82166~~ produces a good canned product comparable to Beryl quality.

In replicated yield trial testing in Twin Falls, Idaho, Marquis ~~D82166~~ has out yielded Beryl by an average of 27 pounds per acre in the years 1983-1988.

//

8900189

Data file: MARQUIS
Title: PVP

Function: T-TEST

SAMPLE ONE:		SAMPLE TWO:	
Variable 4 : W MOLD		Variable 4 : W MOLD	
Cases 1 through 4		Cases 5 through 8	
Mean:	22.25	Mean:	48.00
Variance:	375.58	Variance:	610.67
Standard Deviation:	19.38	Standard Deviation:	24.71

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.6259
Numerator degrees of freedom:	3
Denominator degrees of freedom:	3
Probability:	0.6994

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Variance of the difference between the means:	88.2292
Standard Deviation of the difference:	9.3930
t Value:	-2.7414
Effective degrees of freedom:	3
Probability of t:	0.0713

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.10):
25.750 plus or minus 22.105 (3.645 through 47.855)

8900189

Data file: MARQUIS
Title: PVP

Function: T-TEST

SAMPLE ONE:		SAMPLE TWO:	
Variable 3 : SD/LB		Variable 3 : SD/LB	
Cases 1 through 4		Cases 5 through 8	
Mean:	1492.25	Mean:	1383.75
Variance:	9110.92	Variance:	13876.25
Standard Deviation:	95.45	Standard Deviation:	117.80

F-TEST FOR THE HYPOTHESIS "VARIANCE 1 = VARIANCE 2"

F Value:	1.5230
Numerator degrees of freedom:	3
Denominator degrees of freedom:	3
Probability:	0.7380

Result: Non-Significant F - Accept the Hypothesis

T-TEST FOR THE HYPOTHESIS "MEAN 1 = MEAN 2"

Variance of the difference between the means:	1368.2500
Standard Deviation of the difference:	36.9899
t Value:	2.9332
Effective degrees of freedom:	3
Probability of t:	0.0608

Result: Significant t - Reject the Hypothesis
Confidence limits for the difference of the means (for alpha=0.10):
108.500 plus or minus 87.051 (21.449 through 195.551)

8900189

DRY EDIBLE BEAN

Marquis
~~D82166~~

EXHIBIT E

APPLICANT'S OWNERSHIP

JMS
3/28/90

Variety ~~D82166~~ Marquis was developed by Ronald Shellenberger, Ph.D., a Rogers Brothers Seed Company plant breeder, with Rogers Brothers Seed Company funding the development of the variety. By agreement between employees and Rogers Brothers Seed Company, all rights to any variety developed by employees are assigned to the Company. No rights to such varieties are retained by employees.

State of Delaware

Office of the Secretary of State

I, WILLIAM T. QUILLEN, SERCRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THAT THE SAID "ROGERS NK SEED CO.", FILED A CERTIFICATE OF AMENDMENT, CHANGING ITS NAME TO "ROGERS SEED CO.", THE FIFTH DAY OF MAY, A.D. 1994, AT 9 O'CLOCK A.M.

William T. Quillen

William T. Quillen, Secretary of State

0810041 8320

944080001

AUTHENTICATION: 7120759

DATE: 05-16-94

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STATE OF DELAWARE
SECRETARY OF STATE
DIVISION OF CORPORATIONS
FILED 09:00 AM 05/05/1994
944080001 - 810041

CERTIFICATE OF AMENDMENT

OF

CERTIFICATE OF INCORPORATION
OF
ROGERS NK SEED CO.

Adopted in accordance with the provisions
of Section 242 of the General Corporation
Law of the State of Delaware

EFFECTIVE DATE: June 1, 1994

We, Willem van Overschot, President, and Richard B. Geller, Secretary, of Rogers NK Seed Co., a corporation existing under the laws of the State of Delaware, do hereby certify as follows:

FIRST: The Certificate of Incorporation of the corporation was filed on 2/27/75.

SECOND: The Certificate of Incorporation of said corporation has been amended as follows:

By striking out the whole of Article I thereof as it now exists and inserting in lieu and instead thereof, a new Article I, reading as follows:

ARTICLE I

Name

The name of the Corporation is ROGERS SEED CO.

THIRD: Such amendment has been duly adopted in accordance with the provisions of the General Corporation of Law of the State of Delaware, by the unanimous written consent of all of the stockholders entitled to vote in accordance with the provisions of Section 228 of the General Corporation Law of the State of Delaware.

FOURTH: See attached Written Consent of Sole Shareholder and Board of Directors' Resolution.

IN WITNESS WHEREOF, we have signed this certificate this 13th day of April, 1994.

Willem van Overschot

Willem van Overschot, President

Richard B. Geller

Richard B. Geller, Secretary

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ROGERS NK SEED CO.

WRITTEN CONSENT OF SOLE SHAREHOLDER

SANDOZ CORPORATION, owner of all of the issued and outstanding shares of ROGERS NK SEED CO., hereby consents, pursuant to Section 228 of the Delaware General Corporation Law, to the adoption of the following resolution as and for the act of the shareholder:

RESOLVED, that SANDOZ CORPORATION, as sole shareholder, approves the amendment to Article I of the Certificate of Incorporation of ROGERS NK SEED CO., changing its name to **ROGERS SEED CO.**

Dated: April 22, 1994

Heinz P. Imhof,
Chief Executive Officer
Sandoz Corporation

ROGERS NK SEED CO.

RESOLUTION

RESOLVED, that according to Section 242 of the General Corporation Law of the State of Delaware, that Article I of the Certificate of Incorporation be amended, effective June 1, 1994, to read as follows: The name of the Corporation is **ROGERS SEED CO.**; and, further,

RESOLVED, that the appropriate officers of Rogers NK Seed Co. be, and they hereby are, authorized to take any and all further action and execute and deliver any and all further documents that may be necessary or desirable in order to carry out and effectuate fully the purposes set forth in the foregoing resolution.

ADOPTED UNANIMOUSLY BY THE BOARD
MARCH 31, 1994

Richard B. Geller

Richard B. Geller, Secretary

State of Delaware

Office of the Secretary of State

I, EDWARD J. FREEL, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF MERGER, WHICH MERGES:

"ROGERS SEED CO.", A DELAWARE CORPORATION,

WITH AND INTO "NOVARTIS SEEDS, INC." UNDER THE NAME OF "NOVARTIS SEEDS, INC.", A CORPORATION ORGANIZED AND EXISTING UNDER THE LAWS OF THE STATE OF DELAWARE, AS RECEIVED AND FILED IN THIS OFFICE THE TWENTY-FIFTH DAY OF JUNE, A.D. 1997, AT 9 O'CLOCK A.M.

A CERTIFIED COPY OF THIS CERTIFICATE HAS BEEN FORWARDED TO THE NEW CASTLE COUNTY RECORDER OF DEEDS FOR RECORDING.

Edward J. Freel

Edward J. Freel, Secretary of State

0829320 8100M
971211787

AUTHENTICATION: 8531908

DATE: 06-26-97

STATE OF DELAWARE
SECRETARY OF STATE
DIVISION OF CORPORATIONS
FILED 09:00 AM 06/25/1997
971211767 – 0829320

CERTIFICATE OF MERGER
OF
ROGERS SEED CO.
INTO
NOVARTIS SEEDS, INC.

The undersigned corporation organized and existing under and by virtue of the General Corporation Law of Delaware,

DOES HEREBY CERTIFY:

FIRST: That the name and state of incorporation of each on the constituent corporations of the merger is as follows:

NAME	***STATE OF INCORPORATION***
Novartis Seeds, Inc.	Delaware
Rogers Seed Co.	Delaware

SECOND: That an Agreement and Plan of Merger between the parties to the merger has been approved, adopted, certified, executed and acknowledged by each of the constituent corporations in accordance with the requirements of section 251 of the General Corporation Law of Delaware

THIRD: That the name of the surviving corporation is Novartis Seeds, Inc.

FOURTH: That the Certificate of Incorporation of Novartis Seeds, Inc., a Delaware corporation which will survive the merger, shall be the Certificate of Incorporation of the surviving corporation.

FIFTH: That the executed Agreement and Plan of Merger is on file at the principal place of business of the surviving corporation, the address of which is 7500 Olson Memorial Highway, Golden Valley, MN 55427.

SIXTH That a copy of the Agreement and Plan of Merger will be furnished by the surviving corporation, on request and without cost, to any stockholder of any constituent corporation.

SEVENTH: That this Certificate of Merger shall be effective on July 1, 1997.

Dated June 23, 1997

NOVARTIS SEEDS, INC.

By: Edward C. Resler
Name: Edward C. Resler
Title: Vice President & General Counsel